CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

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Job No.: CTCE/BBMP/W.No.08/KRIDL /SDBC/AGG/2014-15 14.07.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Bullet Krishnappa House Road in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/441/2014-15 Dated : 25.05.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	14.07.2014

Total Weight of Sample: **5200** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	355	6.8	6.83	93.17	90-100	
4.75	2800	53.8	60.67	39.33	35-51	
2.36	640	12.3	72.98	27.02	24-39	
1.18	500	9.6	82.60	17.40	15-30	
0.3	355	6.8	89.42	10.58	9-19	
0.075	300	5.8	95.19	4.81	3-8	

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	300	5.7	5.66	94.34	90-100	
4.75	2585	48.8	54.43	45.57	35-51	
2.36	785	14.8	69.25	30.75	24-39	
1.18	455	8.6	77.83	22.17	15-30	
0.3	355	6.7	84.53	15.47	9-19	
0.075	400	7.5	92.08	7.92	3-8	

Note:

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Job No.: CTCE/BBMP/W.No.44/KRIDL/SDBC/Shape_T/2014-15 : 11.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements to roads and drains at Bullet Krishnappa House Road in Ward No.08, BBMP, Bangalore.
Reference	: AEE/KH/441/2014-15 Dated : 25.05.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 11.07.2014

Result : Flakiness Index = **11.65%**

Elongation Index = **12.85%**

Result : Combined Flakiness & Elongation index **24.50%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL /QB(SDBC)/2014-15 11.07.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements to roads and drains at Bullet Krishnappa House Road in Ward No.08, BBMP, Bangalore.
REFERENCE	:	AEE/KH/441/2014-15 Dated : 25.05.2014
SAMPLE ID	:	Bitumen
DATE OF TESTING	:	11.07.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	85	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	45	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	299	Min. 220

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/S-T/2014-15 11.06.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at Bullet Krishnappa House Road in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/441/2014-15 Dated : 25.05.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	11.06.2014

Result : Flakiness Index = **12.85%**

Elongation Index = **13.20%**

Result : Combined Flakiness & Elongation index **26.05%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/AIV/2014-15 11.06.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Bullet Krishnappa House Road in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/441/2014-15 Dated : 25.05.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	11.06.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	21.41	22.02	
	100* (W_2/W_1)%			21.72

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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11.06.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Bullet Krishnappa House Road in Ward No. 8, BBMP, Bangalore.

Reference : AEE/KH/441/2014-15 Dated: 25.05.2014

Date of Testing : 11.06.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25710**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	928	928	3.6	96.4	95-100
22.4	6627	7555	29.4	70.6	60-80
11.2	5243	12798	49.8	50.2	40-60
4.75	4638	17436	67.8	32.2	25-40
2.36	3521	20957	81.5	18.5	15-30
0.600	2145	23102	89.9	10.1	8-22
0.075	2223	25325	98.5	1.5	0-8

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
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Job No.: CTCE/BBMP/W.No.08/KRIDL/CUBE/2014-15 26.06.2014

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of the work :Improvements to roads and drains at Bullet Krishnappa House Road in Ward No.08, BBMP, Bangalore

Reference : AEE/KH/441/2014-15 Dated : 25.05.2014

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{15}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	29.05.2014	26.06.2014	8.155	356.9	15.86
2	29.05.2014	26.06.2014	8.255	360.8	16.04
3	29.05.2014	26.06.2014	8.310	375.4	16.68

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TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Bullet Krishnappa House Road in Ward No.08, BBMP, Bangalore.

Reference : AEE/KH/441/2014-15 Dated : 25.05.2014

Date of Testing : 26.05.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **10000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec. Limits
80	0	0	0	100	100
40	350	3.50	3.50	96.50	95-100
20	6320	63.20	66.70	33.30	30-70
10	1985	19.85	86.55	13.45	10-35
4.75	950	9.50	96.05	3.95	0-5

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